



BASIC KNOWLEDGE OF
LABORATORY FIRST AID



General issues to be considered by the rescuer in the event of an accident are described below:

- Proceed as follows:

P: PROTECT: move the victim to a safe place.

I: INFORM: call Emergency Services 112.

A: ASSIST:

- Keep calm.
- Keep the victim warm.
- Do not move the victim if unaware of the seriousness of the situation.

1. EXAMINATION OF THE VICTIM.

In the presence of the victim, the rescuer must proceed as follows:

- Unconscious victims:
 - ✓ If breathing:
 1. Move them onto their unaffected side in order to prevent suffocation and airways obstructions [recovery position]
 2. Ask for help.
 - ✓ If not breathing:
 1. Inform.
 2. Start the cardiopulmonary resuscitation.
- Conscious victims: the procedure may vary according to the injury.

2. WOUNDS:

These are caused by trauma and involve the loss of continuity in any body tissue.

Types of wounds:

- *Abrasion:* it is produced when the skin is rubbed off against a rough surface. Generally, it doesn't bleed too much.
- *Incised wound:* it is a cut in the skin caused by a sharp object. It is lineal and it bleeds from the divided vessels.
- *Puncture wound:* it is caused by a sharp, pointed object that penetrates the skin, and that is why it is usually narrower but deeper.



Cleaning and disinfecting wounds:

1. Wash the wound using soap and running water.
2. Disinfect the wound with hydrogen peroxide and sterile gauze.
3. Apply an antiseptic solution to the wound (iodine) and place a dressing and a bandage to hold it in place.
4. Cover incised wounds with gauze and head to a health centre in case it needs stitches.
5. Help the bleeding in order to wash away any remaining bacteria.
6. There is always a risk of tetanus infection, so everyone should be vaccinated against tetanus.

3. HEMORRHAGES:

Blood circulates through the blood vessels throughout the whole body. When a blood vessel bursts, it bleeds and causes hemorrhage.

Hemorrhages or bleedings may be:

- External:
 - These occur when not only a blood vessel is broken, but also the skin, and so blood exits the body. They may be arterial, venous or capillary.
 - External bleeding treatment:
 1. Apply direct pressure at the point of bleeding using a gauze dressing or a freshly laundered piece of cloth. If not available, do so with your hands using proper gloves.
 2. Elevate the injured area so as to reduce the blood pressure in it.
 3. Apply direct compression over an artery against an underlying bone by using your fingers. This technique is used when direct pressure and elevation of the injured area fail to control the bleeding.

In the event of **nosebleed**, the head should be tilted forward and the nose pinched together between the thumb and index fingers. Hold the pressure for a few minutes, and if the bleeding doesn't stop, place a dressing wetted in hydrogen peroxide into the nostril and go to the closest health centre.



- Internal:
 - These occur when blood doesn't exit the body, but it is collected under the skin (capillary bleeding), or in a cavity (venous or arterial bleeding).
 - Types of internal bleeding:
 - *Capillary bleeding*: trauma causes haematomas or tear of the tiny blood vessels under the skin. In the event of haematoma, apply ice in a bag against the skin, as cold temperatures cause blood vessels to tighten and thus the size of the haematoma is reduced.
 - *Venous or arterial bleeding*: it may be caused by abdominal trauma, such as falls from a height or car accidents. Symptoms like vomiting blood may be present.

4. BURNS

Burns are soft tissue injuries caused by chemical or electrical agents, or by radiation.

Types of burns according to depth:

FIRST DEGREE	Only the outer layer of the skin is injured.	Skin is usually red and slightly painful.
SECOND DEGREE	Epidermis and dermis layers are injured.	These can present blisters, pain and swelling.
THIRD DEGREE	All layers of the skin are injured.	Dry skin. These present no pain due to nerve endings damage.



TYPES OF BURNS:

- Thermal burns:
 1. Run the burned area under cool tap water with low pressure for 10-15 minutes.
 2. Size, depth and location of burned areas should be evaluated. If necessary, head to a health centre.
 3. Burns should be covered with a wet gauze dressing or a clean piece of cloth.
 4. Do not puncture blisters.
- Chemical burns: these are usually third degree burns and are caused by:
 - ✓ Contact with chemical substances:
 1. Rinse the skin with plenty of water for 10-15 minutes.
 2. Wrap the burned area with a gauze dressing or a clean piece of cloth.
 3. Remove any clothing contaminated by the chemical, as long as it is not stuck to the skin.
 4. Do not apply any lotion or any other remedy to the burned area. Do not try to neutralise any chemical without consulting the Poison Control Centre.
 5. Prevent any infection by covering the burned area with sterile gauze or clean cloth. The victim should be taken to a health centre.
 - ✓ Inhalation of chemicals (through the airways):
 1. Remove the injured person from the accident site.
 2. Wrap the burned area with sterile gauze dressing or cloth.
 3. If not breathing, start artificial respiration.
 4. If there is no pulse, start cardiopulmonary resuscitation (CPR).
- Electrical burns: these are usually third degree burns. There is generally no bleeding and they are painless.
 1. Before starting first aid, flow of electricity should be interrupted by cutting the current. If this is not possible, proceed as follows:
 - a. The rescuer must be on a rubber or wooden surface.
 - b. The injured person should be removed from the source of electricity using a plastic or wooden object, as these do not conduct electricity.
 - c. Evaluate breathing and pulse. If there is no pulse, cardiopulmonary resuscitation should be started.



5. BASIC CARDIOPULMONARY RESUSCITATION (CPR)

1. In the event of respiratory arrest:

- ✓ Verify first the existence of thoracic movements. In the absence of these, proceed as follows:
- ✓ Pinch the victim's nose closed with one hand, and keep the neck extended and the head tilted back with the other.
- ✓ Inhale deeply, bring your mouth closer to the victim's half-open mouth, and give a full breath which should make the victim's chest rise.
- ✓ Move off and free the nose to allow air out.

2. In the event of cardiac arrest (CPR):

- ✓ Locate the lower third of the victim's sternum.
- ✓ Place the heel of your hand on the sternum.
- ✓ Keep your fingers up off the chest wall. Place your other hand on top of the one that is in position and press down hard.
- ✓ Each compression should make the chest wall move inward about 5 cm.
- ✓ Use at least 100 CHEST COMPRESSIONS PER MINUTE or 30 COMPRESSIONS TO EVERY TWO BREATHS (so as to pump blood in order to deliver oxygen to the brain).

6. INTOXICATIONS

These are the body's reaction to the entry of any toxic substance. Toxic elements may access the organism through:

- The digestive tract.
- The respiratory tract.
- Skin contact.

The seriousness of the intoxication depends on the dose and the toxicity of the product. For that reason, it is essential to know the product nature and which procedure is required to remove it from the body.



1. Intoxication through ingestion:

✓ If the victim is **unconscious**:

1. Ask for urgent medical assistance.
2. Lean the victim forward and turn the victim's head to a side [recovery position].
3. Loosen the clothing and wrap the victim warm in a blanket.
4. DO NOT PROVOKE VOMIT. If the victim vomits, clear up the respiratory tract (cover your fingers with fabric to clean the victim's mouth).
5. Do not administer **anything** orally to an unconscious victim.
6. Do not try to neutralize the toxic product unless the Poison Control Centre indicates to do so.

✓ If the victim is **conscious**:

○ If the toxic product is corrosive:

1. Make the victim drink plenty of water.
2. Take the victim urgently to a health center.
3. DO NOT PROVOKE VOMIT.

○ If the toxic product is not corrosive, take the victim to a health center.

2. Intoxication through inhalation:

This occurs when breathing air containing toxic gas. In these cases somnolence and apathy arise, leading the victim to unconsciousness. Proceed as follows:

- Remove the injured person from the accident site immediately and let the victim breathe in non-stale air. Never try to rescue someone before verifying there is no risk for you and before asking for help previously.
- If the injured person is conscious, apply artificial respiration at the first symptom of respiratory difficulty and take the victim to a health center urgently.

3. Intoxication through skin contact:

There are toxic substances that penetrate the body through the skin or mucosa. Their toxicity depends on the type of product and the dose.

- ✓ Remove any contaminated clothing.
- ✓ Wash the skin abundantly with water. Under no circumstance should the skin be rubbed.

If the eyes are affected:

- ✓ Rinse them with water for 10-15 minutes to remove the product.
- ✓ Take the patient to a medical center with the LABEL or MSDS of the product.